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SOME NOMENCLATORIAL PROBLEMS IN ACACIA

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DURING THE course of investigations dealing with gums and gum-bearing plants it has become increasingly evident that several of the species involved bear scientific names which cannot be maintained under the International Rules of Nomenclature. It seems desirable in the present paper to summarize the nomenclatorial history of these species and to indicate their correct names. A more complete synonymy of these, and other species as well, will be given in a later paper.

ACACIA EHRENBERGIANA *Hayne* (*A. flava* (Forsk.) Schweinfurth)

In 1827, Hayne described *Acacia Ehrenbergiana* and for many years this name was in use for the plant concerned. In 1896, however, Schweinfurth pointed out that *Mimosa flava* Forskal (1775) was in reality this species, and, following the priority rule, he adopted *Acacia flava* (Forsk.) Schweinfurth as the correct name. Many authorities have followed this latter course.

Schweinfurth's name, however, cannot be maintained under the Rules, as it is a later homonym of *Acacia flava* Sprengel ex DeCandolle, and Hayne's name must be reinstated.

Acacia Ehrenbergiana Hayne Arzneigewachse
10 (1827) t. 29.

Mimosa flava Forskal Fl. Aegypt.-Arab. (1775) 176.

Acacia flava (Forsk.) Schweinfurth in Bull. Herb.
Boiss. 4, App. 2 (1896) 214, non Sprengel.

ACACIA NEFASIA (*Hochst. ex A. Rich.*) Schweinfurth
(*A. verugera* Schweinfurth)

In 1867, in his "Acacien-arten des Nilgebiets," Schweinfurth described *Acacia verugera* as a new species. Later, in 1896, he pointed out that *Inga Nefasia* Hochstetter ex A. Richard, formerly considered as a synonym of *Acacia abyssinica* Hochstetter ex Benthams, was actually this species. The new combination which Schweinfurth made at that time seems to have been overlooked by many authorities.

Acacia Nefasia (*Hochst. ex A. Rich.*) Schweinfurth
in Bull. Herb. Boiss. 4, App. 2 (1896) 209.

Inga Nefasia Hochstetter ex A. Richard Tent. Fl.
Abyss. 1 (1847) 237.

Acacia verugera Schweinfurth in Linnaea 35 (1867)
340, tt. 9, 10.

ACACIA NILOTICA (*L.*) Delile
(*A. arabica* (Lam.) Willd.)

In the *Species Plantarum* (1753), Linnaeus included under the genus *Mimosa* two species, *M. scorpioides* and *M. nilotica*. In the second edition of the *Species Plantarum* (1763), Linnaeus combined these two under *Mimosa nilotica*. In 1783, Lamarck in his *Encyclopédie*, apparently believing that Linnaeus had confused two different species under this name, listed *Mimosa nilotica* and also described a new species *Mimosa arabica*.

In the fourth edition of the *Species Plantarum* (1806),

Willdenow, the first to propose subdividing the large Linnean genus *Mimosa*, transferred the species under consideration to *Acacia*. He listed *A. arabica*, but for some reason revived an old epithet of Bauhin's, *vera*, instead of accepting *nilotica* as the specific epithet. This treatment of Willdenow's, recognizing *Acacia arabica* and *Acacia vera*, was generally followed by botanists until Bentham's revision of the *Mimosae* appeared in 1842.

In 1813, however, Delile in his *Florae Aegyptiacae Illustratio* published the combination *Acacia nilotica* based on *Mimosa nilotica* Linnaeus.

In 1842, George Bentham contributed a series of papers to Hooker's *London Journal of Botany* entitled "Notes on the *Mimosae* with a synopsis of the species." In this work the author maintains only one of the two species under discussion, *Acacia arabica*, stating (page 500):

"This very variable species should probably include the *Acacia Nilotica*, and *A. vera* of different authors, if, as is maintained by many, the downy or smooth pod is not a specific distinction."

Bentham goes on to describe four varieties, based on the principal forms of the species which he had seen. These varieties are α *tomentosa*, β *Kraussiana*, γ *nilotica* and δ *indica*.

Bentham further stated his position in regard to *Acacia arabica* in his "Revision of the Sub-order *Mimosae*" which appeared in 1875 in Vol. 30 of the *Transactions of the Linnean Society of London*. Here (page 506) he writes:

"The specimens of this plant show so great a diversity in the indumentum, the spines, the number of pinnae, and even in the fruit, that I should readily have adopted its proposed division into at least four species could I have ascertained any consistency or correlation in the different characters."

In this work the varieties proposed in 1842 are cited as synonyms of *Acacia arabica*, as are *Acacia Adansonii* Guillemain & Perrottet and *Mimosa adstringens* Schumacher & Thonning.

The greater number of botanical works since the appearance of Bentham's first work have followed his interpretation of *Acacia arabica* as a widespread, polymorphic species with several well marked variants. Several authorities, however, have considered the variety *nilotica* to be a good species; a few have raised still others of Bentham's varieties to specific rank.

The immediate question that confronts us is the correct name under the Rules for the aggregate species. Four specific epithets are involved, *arabica*, *nilotica*, *scorpioides* and *vera*.

Acacia vera Willdenow¹ can be ruled out at once as an illegitimate name. It was superfluous when published since *Mimosa nilotica* Linnaeus, a valid name in all respects, was already in existence.

Acacia arabica (Lam.) Willdenow unfortunately must also be discarded. When Bentham united *A. arabica* (1783) and *A. vera* (1806) [*A. nilotica* (1753)] as *Acacia arabica*, he failed to take up the oldest legitimate epithet, *nilotica*. Furthermore, Bentham reduced an older specific name (*nilotica* 1753) to varietal rank under a species of a later date of publication (*arabica* 1783). This is not permissible under the present Rules. The conditions must be reversed with *Acacia nilotica* adopted as the name for the species, while *A. arabica* is reduced to varietal status. Thus for two reasons it becomes necessary to replace *Acacia arabica* by *Acacia nilotica* (L.) Delile.

The situation is further complicated by the existence of *Mimosa scorpioides* Linnaeus. At the time when some

¹*Acacia vera* Garsault Fig. Pl. Anim. Med. (1764) t. 95; Descr. Pl. Anim. (1767) 68 is an accidental binomial and has no standing.

authorities recognized page priority this was considered to be the earliest valid name for the *arabica* complex. W. F. Wight in 1905, and A. Chevalier in 1927, each published the combination *Acacia scorpioides*, and the latter made several varietal transfers. The International Rules as amended at Amsterdam in 1935 invalidate page priority and the choice of epithets must be governed by Article 56. This states that when two groups of the same rank are united, and the names and epithets are of the same date, the author who first unites the two has the right of choosing one of the names and his choice must be followed. Linnaeus himself united *scorpioides* and *nilotica* (both 1753) under *nilotica*; consequently the latter epithet must be utilized.

From all points of view it appears necessary to take up *Acacia nilotica* (L.) Delile in place of the more familiar *Acacia arabica* (Lam.) Willdenow. This procedure has already been followed by some authorities. Among them may be mentioned Fiori, *Boschi e piante legn. Eritrea* (1912) 159—Fawcett and Rendle, *Fl. Jamaica* 4 (1920) 139—Britton and Wilson, *Sci. Survey Puerto Rico & Virgin Islands* (1928) 354—Britton and Rose in *No. Amer. Fl.* 23 (1928) 85—Chiovenda, *Fl. Somal.* 2 (1932) 202.

The correct nomenclature of this polymorphic species with the essential synonymy and necessary varietal transfers follows:

***Acacia nilotica* (L.) Delile** *Fl. Aegypt. Ill.* (1813) 31.

Mimosa nilotica Linnaeus *Sp. Pl.* (1753) 521.

Mimosa scorpioides Linnaeus *Sp. Pl.* (1753) 521.

Mimosa arabica Lamarck *Encycl.* 1 (1783) 19.

Acacia arabica (Lam.) Willdenow *Sp. Pl.* 4 (1806) 1085.

Acacia vera Willdenow Sp. Pl. 4 (1806) 1085.

Acacia scorpioides (L.) W.F. Wight in Contrib. U.S. Nat. Herb. 9 (1905) 173 *in adnot.*

var. **typica**—Fiori Boschi e piante legn. Eritrea (1912) 160.

Mimosa nilotica Linnaeus Sp. Pl. (1753) 521.

Acacia vera Willdenow Sp. Pl. 4 (1806) 1085.

Acacia nilotica (L.) Delile Fl. Aegypt. Ill. (1813) 31.

Acacia arabica (Lam.) Willd. var. *Nilotica* (L.)
Bentham in Hooker London Journ. Bot. 1 (1842)
500.

Acacia scorpioides (L.) W.F. Wight var. *nilotica* (L.)
A. Chevalier in Bull. Soc. Bot. France 74 (1927) 954.

var. **tomentosa** (*Benth.*) *A.F. Hill comb. nov.*

Acacia arabica (Lam.) Willd. var. *tomentosa* Ben-
tham in Hooker London Journ. Bot. 1 (1842) 500.

Acacia arabica sensu Guillemin & Perrottet Fl. Sen-
eg. Tent. 1 (1832) 250 et auct. Afr. plur.

Acacia nilotica (L.) Delile var. *arabica* (Lam.) Fiori
Boschi e piante legn. Eritrea (1912) 160.

Acacia scorpioides (L.) W.F. Wight var. *pubescens*
A. Chevalier in Bull. Soc. Bot. France 74 (1927) 954
(varietal epithet, a *lapsus calami* for *tomentosa*, incor-
rectly attributed to Bentham).

Fiori (1912), while correct in reducing *Acacia arabica*
to varietal status under *Acacia nilotica*, failed to take up
for the new combination the earliest available varietal
epithet, i.e. *tomentosa* Bentham.

var. **Kraussiana** (*Benth.*) *A.F. Hill comb. nov.*

Acacia arabica (Lam.) Willd. var. *Kraussiana* Ben-
tham in Hooker London Journ. Bot. 1 (1842) 500.

Acacia Benthami DeRochebrune Toxicol. Afr. 2
(1898) 192, non Meisner.

Those authorities who consider this variety to be a good species cannot utilize DeRochebrune's name, since it is a later homonym of *Acacia Benthami* Meisner.

var. **indica** (*Benth.*) *A.F.Hill comb. nov.*

Acacia arabica (Lam.) Willd. var. *Indica* Bentham in Hooker London Journ. Bot. 1 (1842) 500.

Mimosa arabica Roxburgh Pl. Corom. 1 (1795) t. 149.

Acacia arabica sensu Wight & Arnott Prodr. Fl. Penin. Ind. Or. 1 (1834) 277 et auct. Ind. plur.

var. **Adansoniana** (*Dubard*) *A.F.Hill comb. nov.*

Acacia arabica (Lam.) Willd. var. *Adansoniana* Dubard in Henry & Ammann Acacias à Tanin (1913) 8.

Mimosa adstringens Schumacher & Thonning Beskr. Guin. Pl. (1827) 327.

Acacia Adansonii Guillemin & Perrottet Fl. Seneg. Tent. 1 (1832) 249.

Acacia arabica (Lam.) Willd. var. *Adansonii* (Guill. & Perr.) A. Chevalier in Expl. Bot. Afr. Occ. Fr. 1 (1920) 244.

Acacia scorpioides (L.) W.F. Wight var. *adstringens* (Schum. & Thonn.) A. Chevalier in Bull. Soc. Bot. France 74 (1927) 956.

Acacia arabica (Lam.) Willd. var. *adstringens* (Schum. & Thonn.) E.G. Baker Legum. Trop. Afr. (1930) 849.

Acacia nilotica (L.) Delile var. *adstringens* (Schum. & Thonn.) Chiovenda Fl. Somal. 2 (1932) 202.

Mimosa adstringens (1827) and *Acacia Adansonii* (1832) are clearly synonymous. The earlier epithet, however, is not available for use under *Acacia* since the resulting combination would be a later homonym of *Acacia adstringens* Martius. *Acacia Adansonii* Guillemin & Perrottet consequently is the correct name for this variant

when considered of specific rank. When reduced to varietal rank, the earliest epithet applied in the new rank is *Adansoniana* Dubard. Under the Rules this must be adopted rather than either *adstringens* or *Adansonii*.

ACACIA ORFOTA (*Forsk.*) Schweinfurth
(*A. nubica* Bentham)

Bentham described *Acacia nubica* as a new species in 1842. In 1896, Schweinfurth pointed out that Forskal had described the same plant in 1775 as *Mimosa örfota*. Following the rule of priority Schweinfurth made the correct combination *Acacia Orfota* (*Forsk.*) Schweinfurth, a name which seems to have been rather generally overlooked by botanists.

Acacia Orfota (*Forsk.*) Schweinfurth in Bull. Herb. Boiss. 4, App. 2 (1896) 213.

Mimosa örfota Forskal Fl. Aegypt.-Arab. (1775) 177.

Acacia nubica Bentham in Hooker London Journ. Bot. 1 (1842) 498.

ACACIA RADDIANA *G. Savi*
(*A. tortilis* Hayne)

In northern and northeastern Africa there occur two closely related acacias with spirally twisted legumes which have been passing as *Acacia tortilis* Hayne and *Acacia spirocarpa* Hochstetter ex A. Richard. The former is a species ranging from the Anglo-Egyptian Sudan, across the Libyan and Nubian deserts to the French Sudan, Senegambia and northern Nigeria. The latter occurs in Arabia, Nubia, the Anglo-Egyptian Sudan, Eritrea, Tanganyika and Kenya. Burtt-Davy, in discussing these two species (in Kew Bull. 1930: 402), states that they may represent two species which have hybridized, or an aggregate species with a tendency to geographic segre-

gation. In either event they are distinct enough to warrant their continued maintenance as separate species, with intermediate variants.

Acacia tortilis was published by Hayne in 1827, based on *Mimosa tortilis* Forskal, which appeared in the *Flora Aegyptiaco-Arabica* (1775) together with a very short description. Hayne's name has continued in general use, even though the true identity of Forskal's plant, on which it was based, has long been in doubt.

In 1867, Schweinfurth (in *Linnaea* 35: 328) wrote as follows in regard to the identity of this plant:

“Ob die von Hayne. . .zuerst beschriebene und abgebildete *A. tortilis* mit dem *Mimosa tortilis* Forskal's. . .identisch sei, lässt sich ohne Original-Exemplare nicht entscheiden, da, nach der Beschreibung zu urtheilen, unter diesen Namen ebenso gut die Var. *a* der *Acacia spirocarpa* gemeint sein könnte.”

Bentham, in 1875 (in *Trans. Linnean Soc. London* 30: 505), stated that *Mimosa tortilis* Forskal “must be either *A. spirocarpa* or *A. tortilis*; the character given is insufficient for determination.” He included Forskal's name in the synonymy of *A. spirocarpa*.

Schweinfurth again commented on this problem in 1896 (in *Bull. Herb. Boiss.* 4, App. 2: 207) stating:

“*Mimosa tortilis* F. . .ist wahrscheinlich mit *A. spirocarpa* H. identisch; die allzukurze Diagnose gestattet es indessen nicht, die Möglichkeit auszuschliessen, dass darunter *A. tortilis* Hayne zu verstehen sei.”

He also cited “?*Mimosa tortilis* Fk.” in the synonymy of *A. spirocarpa*.

Burtt-Davy (in *Kew Bull.* 1930: 404) gives *Mimosa tortilis* Forsk. ? in the synonymy of *A. tortilis*, but quotes Bentham's statement that *Mimosa tortilis* Forskal “must be either *A. spirocarpa* or *A. tortilis*.”

In 1927, A. Chevalier (in *Rev. Bot. Appl.* 8: 125) questioned the validity of *Acacia tortilis* Hayne; discarded it on the ground that *Mimosa tortilis* Forskal was a *nomen nudum*; and adopted in its stead *Acacia fasciculata* Guillemin & Perrottet.

In 1933, Maire (in *Mém. Soc. Hist. Nat. Afr. Nord* 3: 118) pointed out that *Acacia fasciculata* Guillemin & Perrottet was itself untenable as it was a later homonym of both *A. fasciculata* Kunth and *A. fasciculata* R. Brown; and adopted *Acacia Raddiana* G. Savi with which to replace *Acacia tortilis* Hayne, a procedure which Chevalier followed in 1934 (in *Rev. Bot. Appl.* 14: 881).

Maire, however, did not discard *Acacia tortilis* Hayne for the same reason that Chevalier did. He did not consider that *Mimosa tortilis* Forskal was a *nomen nudum* in view of the fact that a description, even though a meagre one, accompanied the publication of the name. Maire's action was prompted by his belief that Forskal's name applied to a different species from the one Hayne had described, i.e. to *A. spirocarpa* Hochstetter ex A. Richard rather than to *A. tortilis* Hayne; and further, that Hayne had erroneously applied the original epithet in its new position. This belief was based in part on Christensen's "Index to Forsskal: Flora Aegyptiaco-Arabica 1775, with a Revision of the Herbarium Forsskal," and in part on a personal letter from Christensen in which the latter corroborated his published statement.

Christensen's published commentary (in *Dansk Bot. Arkiv* 4 (1922) 29) is not entirely clear:

"82. †*Mimosa tortilis* = *Acacia tortilis* (Forsk.) Hayne (*A. spirocarpa* Hochst.; Schwf. Beitr. 207)."

It is no wonder that Maire asked Christensen for further confirmation, which he received in a letter to which he refers (l.c. 118 *in adnot*):

“Cette identité ne ressortait pas nettement de la publication de Christensen (Index to P. Forskal: Flora. .). Mais Christensen a bien voulu nous préciser par lettre que le specimen de *M.tortilis* de Forskal a bien les légumes pubescents et est absolument identique à l’ *A.spirocarpa*.”

Since Christensen had access to Forskal’s herbarium he was in a much better position to pass accurately on the identity of *Mimosa tortilis* than any of his predecessors, and his conclusions should carry more weight. In view of this, Maire’s action in taking up *Acacia Raddiana* G.Savi for the plant which has been passing as *Acacia tortilis* Hayne is entirely logical. It is also necessary (see below) to adopt *Acacia tortilis* (Forsk.) Hayne in place of *Acacia spirocarpa* Hochstetter ex A. Richard.

In taking up *Acacia Raddiana* G.Savi for the plant which has been passing as *Acacia tortilis* Hayne, new varietal combinations will be necessary. The nomenclature of the species and its varieties follows:

***Acacia Raddiana* G.Savi** *Sopra alcune Acacie egiz.* (1830) 1.

Acacia tortilis Hayne *Arzneigewachse* 10 (1827) t. 31, quoad plantam non quoad nomen; et auct. plur. *Acacia fasciculata* Guillemain & Perrottet *Fl. Seneg. Tent.* 1 (1832) 252, non Kunth, nec R. Brown.

var. **crinita** (*Chiov.*) *A.F.Hill comb. nov.*

Acacia tortilis Hayne var. *crinita* Chiovenda *Coll. Bot. Stef. Paoli* 1 (1916) 71.

var. **pubescens** (*A.Chev.*) *A.F.Hill comb. nov.*

Acacia tortilis Hayne var. *pubescens* A. Chevalier in *Bull. Soc. Bot. France* 74 (1927) 960.

Acacia fasciculata Guill. & Perr. var. *pubescens* A. Chevalier in *Rev. Bot. Appl.* 8 (1928) 124.

Acacia tortilis Hayne var. *pubescens* Aylmer ex Burtt-Davy in *Kew Bull.* 1930 : 402.

ACACIA TERMINALIS (*Salisb.*) *Macbride*
(*A. elata* A. Cunningham)

When Macbride took up Salisbury's name for this plant in 1917 on the basis of priority, he wrote (in *Contrib. Gray Herb.* 59: 7): "It seems reasonably certain that Salisbury described the plant named much later by Cunningham." In spite of the fact that this new combination was published over twenty years ago it seems to have been entirely overlooked by botanists.

Acacia terminalis (*Salisb.*) *Macbride* in *Contrib. Gray Herb.* 59 (1917) 7.

Mimosa terminalis Salisbury *Prodr.* (1796) 325.

Acacia elata A. Cunningham in *Hooker London Journ. Bot.* 1 (1842) 383.

ACACIA TORTILIS (*Forsk.*) *Hayne*
(*A. spirocarpa* Hochst. ex A. Richard)

In our discussion of *Acacia Raddiana* G. Savi it was pointed out that when Hayne published *Acacia tortilis*, based on *Mimosa tortilis* Forskal, he applied the specific epithet erroneously in its new position to a different plant. Article 54 of the International Rules of Nomenclature provides that: "When, on transference to another genus, the specific epithet has been applied erroneously in its new position to a different plant, the new combination must be retained for the plant on which the epithet was originally based."

Maire (in *Mém. Soc. Hist. Nat. Afr. Nord* 3 (1933) 118) was the first to point out that under the Rules the combination *Acacia tortilis* must be used in place of *Acacia spirocarpa* Hochstetter ex A. Richard. He writes:

"Or l'étude du spécimen original de Forskal a permis à Christensen d'établir l'identité de la plante de cet auteur avec l'*Acacia spirocarpa* Hochst. in Rich. Ce dernier doit donc prendre, en conformité

avec les règles de la nomenclature le nom *d'Acacia tortilis* (Forsk.) Christensen in litteris; non Hayne.”

In 1935 at Amsterdam, Article 54 was amplified to provide that the new combination “must be attributed to the author who first published it.” Consequently the correct name, as the Rules now stand, for the familiar *Acacia spirocarpa* Hochstetter ex A. Richard is *Acacia tortilis* (Forsk.) Hayne.

It is unfortunate that two names of such long standing as *Acacia tortilis* Hayne and *A. spirocarpa* Hochstetter ex A. Richard cannot be maintained with their familiar connotation, but this is impossible. Perhaps at some future date the situation may be clarified. In 1934, Chevalier (in *Rev. Bot. Appl.* 14: 882), commenting on *Acacia spirocarpa*, made the following suggestive statement:

“Il semble que c'est une espèce très peu distincte de *A. Raddiana* et le nom de *A. tortilis* Hayne est sans doute à conserver comme espèce linéenne englobant les deux bonnes précédentes comme sousespèces.”

The essential nomenclature of this species and its variety follows:

Acacia tortilis (*Forsk.*) *Hayne* *Arzneigewachse* 10 (1827) t. 31, quoad nomen non quoad plantam.

Mimosa tortilis Forskal *Fl. Aegypt.-Arab.* (1775) 176.

Acacia spirocarpa Hochstetter ex A. Richard *Tent. Fl. Abyss.* 1 (1847) 239.

Acacia spirocarpa Hochst. ex A. Rich. var. *β major* Schweinfurth in *Linnaea* 35 (1867) 323, t. 5.

var. **minor** (*Schweinf.*) *A. F. Hill* *comb. nov.*

Acacia spirocarpa Hochst. ex A. Rich. var. *α minor* Schweinfurth in *Linnaea* 35 (1867) 323, tt. 4, 6.

Acacia gummifera Delile *Fl. Aegypt. Ill.* (1813) 31, non Willd.